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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,789	06/28/2001	Hyo-Jin Kim	053785-5022	9633

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EXAMINER  
DI GRAZIO, JEANNE A

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 04/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/892,789	KIM, HYO-JIN	
<b>Examiner</b>	<b>Art Unit</b>		
Jeanne A. Di Grazio	2871		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 22 January 2003.
- 2a) This action is **FINAL**.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 28 June 2001 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Priority***

Priority to Korean Patent Application No. 2000-51876 (Sept. 2, 2000) is claimed.

### ***Amendment***

This communication is responsive to Amendment dated January 22, 2003.

### ***Claim Objections***

The objections to claims 15 and 16 as containing minor informalities are withdrawn.

### ***Response to Argument***

Regarding independent claim 1, Applicant has amended independent claim 1 to read that (the Examiner summarizes Applicant's amendments) first and second printed circuit boards are disposed on a first frame (Page 10) and that first and second printed circuit boards are mounted wherein the second printed circuit board is mounted on and electrically connected to first printed circuit board (Page 10). Applicant further amends with the word "mounted."

Applicant states that "none of Won et al., Takahashi et al., and Summers et al., whether taken alone or in combination, teach or suggest at least the claimed combination" with respect to amended claim 1. The Examiner respectfully disagrees with Applicant. While Takahashi does have a flexible interconnect board (700) that electrically interconnects printed circuit boards 600B and 610 and this flexible interconnect board is not a PCB – per se, Takahashi does have at least two printed circuit boards (600A and 600B) at the peripheries of at least two sides of the LCD element (Col. 3, Lines 30-35). PCBs 600A and 600B and 610 are electrically interconnected with each other by the flexible interconnect board (Id.). Applicant's attention is respectfully directed to Column 3, Lines 32-35, and Figure 4 of Takahashi.

The Examiner wishes to note that first and second printed circuit boards electrically interconnected and also containing driving elements are necessary for driving and controlling a display. See, for example, Sasauga et al. (US '183)(referring to claims 18 and 12 of Sasauga).

Regarding independent claim 15: Applicant has amended independent claim 15 to read a backlight on one of the upper and lower substrate ... at least one first PCB ... at least one second printed circuit board mounted onto the at least one first printed circuit board ... and ... driving circuitry elements are disposed on each of the first and second printed circuit boards. The examiner noted that Takahashi has at least first and second printed circuit boards.

The Examiner will now address specific rejections of claims 1 and 15 as these claims have been amended by Applicant. Rejections necessitated by amendment follow:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 15 as amended are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasauga et al. (US '183) in view of Onoda et al. (US '874).

Per claim 1 as amended: Sasauga has first and second printed circuit boards disposed (Figure 31) and they each contain driving circuit elements (Claim 18). Sasauga does not appear to have first and second printed circuit boards mounted on each other; however, Onoda has first and second printed circuit boards mounted on each other (Col. 2, Lines 28-44 and 60-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to

modify Sasauga in view of Onoda to reduce the thickness of a display device (Col. 1, Line 7).

While Onoda concerns reducing the thickness of an IC card, a main goal of LCD technology is to manufacture thinner displays, and as such the motivation, teaching, and suggestion of Onoda is directly applicable to LCD technology.

Per claim 15 as amended: Sasauga has a backlight on a substrate (Col. 1, Lines 44-45, Col. 6, Lines 38-45, Col. 9, Lines 52-55). Sasauga has driving elements on each first and second printed circuit board (Claim 18). Sasauga does not appear to have first and second printed circuit boards mounted on each other; however, Onoda has first and second printed circuit boards mounted on each other (Col. 2, Lines 28-44 and 60-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sasauga in view of Onoda to reduce the thickness of a display device (Col. 1, Line 7). While Onoda concerns reducing the thickness of an IC card, a main goal of LCD technology is to manufacture thinner displays, and as such the motivation, teaching, and suggestion of Onoda is directly applicable to LCD technology.

Claim 16 as amended are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasauga et al. (US '183) and Onoda et al. (US '874) in further view of Okazaki et al. (US '847).

Per claim 16 as amended: Sasauga does not appear to specify that the first PCB includes a source PCB and the second PCB includes a control PCB; however, Okazaki has these elements (Col. 2, Lines 3-9). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sasauga in view of Okazaki to drive and control an LCD device (Col. 2, Lines 7-9).

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The Examiner concludes that amended claims 1, 15, and 16 as they are currently amended, do not distinguish over the prior art as noted and cited.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (703)305-7009. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-8741 for regular communications and (703)746-8741 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Jeanne Andrea Di Grazio

Robert Kim, SPE

JDG  
April 7, 2003

  
T. Chowdhury  
Primary Examiner  
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